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Test 1483: Versatile 875 Series 3 Diesel 12-Speed

Tractor Museum
University of Nebraska-Lincoln, TractorMuseumArchives@unl.edu

NEBRASKA TRACTOR TEST 1483
VERSATILE 875 SERIES 3 DIESEL
12 SPEED
(SERIAL NUMBERS 875 83 057906 and HIGHER)

POWER TAKE-OFF PERFORMANCE

Power Hp (kW)	Crank shaft speed rpm	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temperature °F (°C) Cooling medium	Air wet bulb	Air dry bulb	Barometer inch Hg (kPa)
MAXIMUM POWER AND FUEL CONSUMPTION								
Rated Engine Speed—Two Hours (PTO Speed—1008 rpm)								
252.67 (188.42)	2100	15.022 (56.864)	0.417 (0.254)	16.82 (3.314)	185 (84.8)	62 (16.9)	76 (24.3)	28.680 (96.848)
VARYING POWER AND FUEL CONSUMPTION—Two Hours								
223.32 (166.53)	2183	14.078 (53.291)	0.442 (0.269)	15.86 (3.125)	182 (83.1)	63 (17.2)	76 (24.2)	....
0.00 (0.00)	2297	4.091 (15.486)	....	....	176 (79.7)	63 (17.2)	76 (24.4)	....
114.55 (85.42)	2242	9.850 (37.286)	0.603 (0.367)	11.63 (2.291)	178 (81.1)	64 (17.8)	77 (25.0)	....
249.36 (185.95)	2100	15.178 (57.455)	0.427 (0.260)	16.43 (3.236)	183 (83.9)	62 (16.9)	74 (23.3)	....
57.96 (43.22)	2264	6.898 (26.112)	0.834 (0.508)	8.40 (1.655)	176 (80.0)	62 (16.4)	74 (23.3)	....
170.07 (126.82)	2217	12.323 (46.648)	0.508 (0.309)	13.80 (2.719)	181 (82.8)	63 (17.2)	76 (24.2)	....
Av 135.88	**2217**	**10.403**	**0.537**	**13.06**	**179**	**63**	**75**	**28.657**
Av (101.33)		***(39.380)***	***(0.327)***	***(2.573)***	***(81.8)***	***(17.1)***	***(24.1)***	***(96.770)***

DRAWBAR PERFORMANCE AT 2100 RPM

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) Cooling med	Air wet bulb	Air dry bulb	Barom. inch Hg (kPa)
Maximum Available Power—Two Hours 7th (2-3) Gear											
224.08 (167.10)	12851 (57.16)	6.54 (10.52)	2099	3.18	14.691 (55.612)	0.460 (0.280)	15.25 (3.005)	186 (85.3)	58 (14.4)	70 (21.1)	28.910 (97.625)
75% of Pull at Maximum Power—Ten Hours 7th (2-3) Gear											
179.79 (134.07)	9737 (43.31)	6.92 (11.14)	2203	2.28	13.090 (49.552)	0.510 (0.310)	13.73 (2.706)	186 (85.7)	68 (19.9)	82 (27.8)	28.841 (97.392)
50% of Pull at Maximum Power—Two Hours 7th (2-3) Gear											
122.62 (91.44)	6492 (28.88)	7.08 (11.40)	2236	1.54	10.377 (39.280)	0.593 (0.361)	11.82 (2.328)	184 (84.4)	64 (17.8)	81 (27.2)	28.845 (97.405)
50% of Pull at Reduced Engine Speed—Two Hours 11th (3-3) Gear											
122.69 (91.49)	6492 (28.88)	7.09 (11.41)	1149	1.46	7.399 (28.009)	0.423 (0.257)	16.58 (3.267)	186 (85.3)	66 (18.6)	84 (28.9)	28.815 (97.304)

MAXIMUM POWER IN SELECTED GEARS

198.49 (148.02)	26725 (118.88)	2.79 (4.48)	2119	14.68	2nd (1-2) Gear	185 (85.0)	64 (17.8)	69 (20.6)	28.880 (97.523)
216.49 (161.43)	23854 (106.11)	3.40 (5.48)	2099	8.51	3rd (1-3) Gear	184 (84.4)	61 (16.1)	70 (21.1)	28.860 (97.456)
220.29 (164.27)	20273 (90.18)	4.07 (6.56)	2099	5.70	4th (1-4) Gear	184 (84.4)	57 (13.9)	64 (17.8)	28.860 (97.456)
225.73 (168.33)	17584 (78.22)	4.81 (7.75)	2099	4.76	5th (2-1) Gear	187 (86.1)	63 (17.2)	82 (27.8)	28.820 (97.321)
227.48 (169.63)	15107 (67.20)	5.65 (9.09)	2099	3.71	6th (2-2) Gear	188 (86.7)	63 (17.2)	81 (27.2)	28.830 (97.355)
226.35 (168.79)	12983 (57.75)	6.54 (10.52)	2098	3.13	7th (2-3) Gear	187 (86.1)	61 (16.1)	78 (25.6)	28.860 (97.456)
224.81 (167.64)	11042 (49.12)	7.63 (12.29)	2099	2.64	8th (2-4) Gear	187 (86.1)	62 (16.7)	80 (26.7)	28.850 (97.422)
221.70 (165.32)	8630 (38.39)	9.63 (15.50)	2099	1.97	9th (3-1) Gear	187 (86.1)	63 (17.2)	81 (27.2)	28.840 (97.388)

LUGGING ABILITY IN 7th (2-3) GEAR

Crankshaft Speed rpm	2098	1887	1683	1471	1256	1048
Pull—lbs (kN)	12983 (57.75)	15067 (67.02)	16659 (74.10)	17675 (78.62)	17212 (76.56)	16142 (71.80)
Increase in Pull %	0	16	28	36	33	24
Power—Hp (kW)	226.35 (168.79)	234.79 (175.08)	230.06 (171.55)	212.49 (158.45)	176.96 (131.96)	138.96 (103.62)
Speed—Mph (km/h)	6.54 (10.52)	5.84 (9.40)	5.18 (8.33)	4.51 (7.26)	3.86 (6.20)	3.23 (5.20)
Slip %	3.13	3.71	4.36	4.83	4.68	4.36

TRACTOR SOUND LEVEL WITH CAB	1750 RPM dB(A)	1900 RPM dB(A)	2100 RPM dB(A)
Maximum Available Power—Two Hours	83.0	80.5	82.5
75% of Pull at Maximum Power—Ten Hours			82.5
50% of Pull at Maximum Power—Two Hours			81.5
50% of Pull at Reduced Engine Speed—Two Hours			79.0
Bystander in 12th (3-4) gear			89.0

Department of Agricultural Engineering

Dates of Test: May 31 to June 10, 1983

Manufacturer: VERSATILE FARM EQUIPMENT COMPANY, 1260 Clarence Avenue, Winnipeg, Manitoba, Canada R3T 1T3

FUEL, OIL AND TIME: Fuel No. 2 Diesel **Cetane No.** 47.0 (rating taken from oil company's inspection data) **Specific gravity converted to 60°/60° *(15°/15°)*** 0.8420 **Fuel weight** 7.011 lbs/gal *(0.840 kg/l)* **Oil SAE** 15W-40 **API service classification** SE-SF, CC-CD **To motor** 7.334 gal *(27.762 l)* **Drained from motor** 6.906 gal *(26.141 l)* **Transmission and hydraulic lubricant** Versatile Hygear 23 or equivalent **Final drive lubricant** SAE 85W140 **Total time engine was operated** 41.0 hours.

ENGINE: Make Cummins Diesel **Type** six cylinder vertical with turbocharger **Serial No.** 11084147 **Crankshaft** lengthwise **Rated rpm** 1750 to 2100 **Bore and stroke** 5.5″ × 6.0″ *(139.7 mm × 152.4 mm)* **Compression ratio** 14.1 to 1 **Displacement** 855 cu in *(14013 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements with aspirator **Oil filter** one full flow cartridge and one bypass cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil **Fuel filter** two paper cartridges **Muffler** vertical **Cooling medium temperature control** one thermostat.

CHASSIS: Type four wheel drive with duals **Serial No.** 875 83 058000 **Tread width** rear 72″ *(1829 mm)* to 122″ *(3099 mm)* front 72″ *(1829 mm)* to 122″ *(3099 mm)* **Wheel base** 130″ *(3302 mm)* **Center of gravity** (without operator or ballast, with minimum tread, with fuel tank filled and tractor serviced for operation) Horizontal distance forward from center-line of rear wheels 77″ *(1960 mm)* Vertical distance above roadway 42″ *(1067 mm)* Horizontal distance from center of rear wheel tread 0″ *(0 mm)* to the right/left **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio **Advertised speeds mph *(km/h)*** first 2.7 *(4.3)* second 3.1 *(5.0)* third 3.6 *(5.8)* fourth 4.1 *(6.6)* fifth 4.8 *(7.7)* sixth 5.6 *(9.0)* seventh 6.5 *(10.5)* eighth 7.5 *(12.1)* ninth 9.4 *(15.1)* tenth 10.9 *(17.5)* eleventh 12.6 *(20.3)* twelfth 14.6 *(23.5)* reverse 3.5 *(5.6)*, 4.0 *(6.4)*, 4.6 *(7.4)*, 5.4 *(8.7)* **Clutch** dual dry disc operated by foot pedal **Brakes** dual caliper disc hydraulically operated by foot pedal and mechanically by hand lever **Steering** hydrostatic and articulated **Turning radius** (on concrete surface without brake) right 239″ *(6.07 m)* left 239″ *(6.07 m)* **Turning space diameter** (on concrete surface without brake) right 490″ *(12.45 m)* left 490″ *(12.45 m)* **Power take-off** 1008 rpm at 2100 engine rpm.

SUPPLEMENTARY TESTS
DRAWBAR PERFORMANCE AT 1900 RPM

Power Hp *(kW)*	Drawbar pull lbs *(kN)*	Speed mph *(km/h)*	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr *(l/h)*	lb/hp.hr *(kg/kW.h)*	Hp.hr/gal *(kW.h/l)*	Temp. °F *(°C)* Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg *(kPa)*
Maximum Available Power—Two Hours 7th (2-3) Gear											
231.99 *(172.99)*	14785 *(65.76)*	5.88 *(9.47)*	1900	3.79	14.352 *(54.330)*	0.434 *(0.264)*	16.16 *(3.184)*	187 *(86.1)*	61 *(16.1)*	77 *(24.7)*	28.880 *(97.523)*
MAXIMUM POWER IN SELECTED GEARS											
206.98 *(154.34)*	26606 *(118.35)*	2.92 *(4.69)*	1937	15.00	3rd (1-3) Gear			186 *(85.6)*	65 *(18.3)*	70 *(21.1)*	28.890 *(97.557)*
225.76 *(168.35)*	23482 *(104.45)*	3.61 *(5.80)*	1899	7.77	4th (1-4) Gear			185 *(84.7)*	58 *(14.4)*	66 *(18.9)*	28.860 *(97.456)*
228.33 *(170.26)*	19923 *(88.62)*	4.30 *(6.92)*	1899	5.94	5th (2-1) Gear			188 *(86.7)*	63 *(17.2)*	82 *(27.8)*	28.810 *(97.287)*
233.85 *(174.38)*	17304 *(76.97)*	5.07 *(8.16)*	1899	4.60	6th (2-2) Gear			188 *(86.7)*	63 *(17.2)*	81 *(27.2)*	28.830 *(97.355)*
234.67 *(174.99)*	14959 *(66.54)*	5.88 *(9.47)*	1899	3.63	7th (2-3) Gear			189 *(87.2)*	62 *(16.7)*	79 *(26.1)*	28.850 *(97.422)*
233.65 *(174.23)*	12743 *(56.68)*	6.88 *(11.07)*	1899	2.97	8th (2-4) Gear			188 *(86.7)*	62 *(16.7)*	80 *(26.7)*	28.840 *(97.388)*
231.21 *(172.42)*	9986 *(44.42)*	8.68 *(13.97)*	1898	2.30	9th (3-1) Gear			189 *(86.9)*	63 *(17.2)*	81 *(27.2)*	28.840 *(97.388)*

DRAWBAR PERFORMANCE AT 1750 RPM

Power Hp *(kW)*	Drawbar pull lbs *(kN)*	Speed mph *(km/h)*	Crank-shaft speed rpm	Slip %	Fuel Consumption gal/hr *(l/h)*	lb/hp.hr *(kg/kW.h)*	Hp.hr/gal *(kW.h/l)*	Temp. °F *(°C)* Cool-ing med	Air wet bulb	Air dry bulb	Barom. inch Hg *(kPa)*
Maximum Available Power—Two Hours 7th (2-3) Gear											
229.39 *(171.06)*	15957 *(70.98)*	5.39 *(8.68)*	1751	4.27	13.800 *(52.238)*	0.422 *(0.257)*	16.62 *(3.275)*	188 *(86.7)*	63 *(16.9)*	76 *(24.4)*	28.860 *(97.456)*
MAXIMUM POWER IN SELECTED GEARS											
206.18 *(153.75)*	26293 *(116.95)*	2.94 *(4.73)*	1948	14.81	3rd (1-3) Gear			187 *(85.8)*	66 *(18.9)*	72 *(22.2)*	28.900 *(97.591)*
217.62 *(162.28)*	25182 *(112.02)*	3.24 *(5.22)*	1750	10.10	4th (1-4) Gear			186 *(85.6)*	60 *(15.6)*	68 *(20.0)*	28.860 *(97.456)*
224.32 *(167.27)*	21478 *(95.54)*	3.92 *(6.30)*	1749	6.94	5th (2-1) Gear			188 *(86.7)*	63 *(17.2)*	82 *(27.8)*	28.810 *(97.287)*
229.17 *(170.89)*	18506 *(82.32)*	4.64 *(7.47)*	1751	5.15	6th (2-2) Gear			189 *(87.2)*	63 *(17.2)*	81 *(27.2)*	28.820 *(97.321)*
231.95 *(172.97)*	16140 *(71.79)*	5.39 *(8.67)*	1748	4.19	7th (2-3) Gear			189 *(87.2)*	62 *(16.7)*	79 *(26.1)*	28.850 *(97.422)*
232.12 *(173.09)*	13759 *(61.20)*	6.33 *(10.18)*	1753	3.38	8th (2-4) Gear			189 *(87.2)*	62 *(16.7)*	80 *(26.7)*	28.840 *(97.388)*
230.25 *(171.70)*	10823 *(48.14)*	7.98 *(12.84)*	1748	2.39	9th (3-1) Gear			190 *(87.8)*	63 *(17.2)*	81 *(27.2)*	28.830 *(97.355)*
228.65 *(170.50)*	9211 *(40.97)*	9.31 *(14.98)*	1748	1.97	10th (3-2) Gear			188 *(86.4)*	63 *(17.2)*	81 *(27.2)*	28.830 *(97.355)*

TIRES, BALLAST AND WEIGHT		With Ballast	Without Ballast
Rear Tires	—No., size, ply & psi *(kPa)*	Four 20.8-38; 8; inner 14 *(95)*; outer 12 *(85)*	Four 20.8-38; 8; inner 14 *(95)*; outer 12 *(85)*
Ballast	—Liquid (each inner)	1170 lb *(531 kg)*	None
	—Cast Iron (each)	None	None
Front Tires	—No., size, ply & psi *(kPa)*	Four 20.8-38; 8; inner 14 *(95)*; outer 12 *(85)*	Four 20.8-38; 8; inner 14 *(95)*; outer 12 *(85)*
Ballast	—Liquid (each inner)	765 lb *(347 kg)*	None
	—Cast Iron (each)	None	None
Height of Drawbar		19.5 in *(495 mm)*	19.5 in *(495 mm)*
Static Weight with Operator	—Rear	12815 lb *(5813 kg)*	10475 lb *(4752 kg)*
	—Front	16685 lb *(7568 kg)*	15155 lb *(6874 kg)*
	—Total	29500 lb *(13381 kg)*	25630 lb *(11626 kg)*

REPAIRS and ADJUSTMENTS: No repairs or adjustments.

REMARKS: All test results were determined from observed data obtained in accordance with SAE and ASAE test codes or official Nebraska test procedure. For the maximum power tests, the fuel temperature at the injection pump was maintained at 137°F *(58.3°C)*. Eight gears were chosen between 15% slip and 10 mph *(16.1 km/h)*. The performance figures on this report apply to tractor chassis Serial No. 875 83 057906 and higher.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **1483.**

LOUIS I. LEVITICUS
Engineer-in-Charge

K. VON BARGEN
W. E. SPLINTER
L. L. BASHFORD
Board of Tractor Test Engineers

Versatile 875 Series 3 Diesel

The Agricultural Experiment Station
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln
Irvin T. Omtvedt, Dean and Director